

AIR POLLUTION: WHAT IS NITROGEN DIOXIDE?

Nitrogen dioxide (NO₂) is one of a group of gases known as **nitrogen oxides (NO_x)**. NO₂ has direct health effects but can also react with other pollutants in air to form ground-level ozone (O₃) and particulate matter (PM), the major components of smog. NO₂ also contributes to the formation of acid rain.



WHO IS MOST AT RISK FROM AIR POLLUTION?

Even healthy young adults can experience health issues on days when the air is heavily polluted but some groups are more at risk:

- Children
- Seniors
- People with asthma, chronic obstructive pulmonary disease (COPD), cardiovascular diseases, diabetes
- Active people of all ages who exercise or work hard outdoors



Children / Seniors

HEALTH EFFECTS OF NITROGEN DIOXIDE

Health effects of outdoor NO₂ can occur even at very low concentrations, including:



Increased lung problems



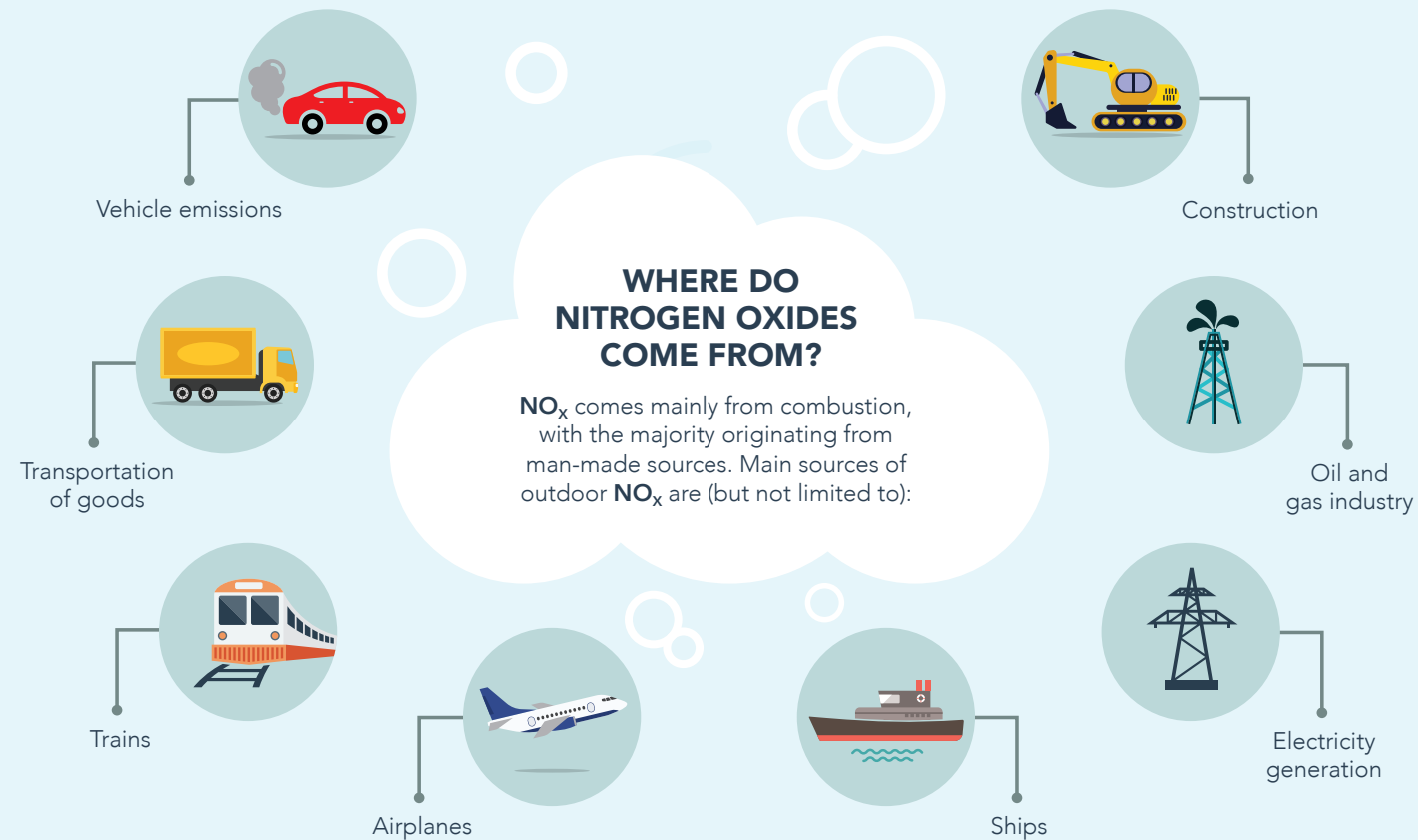
Increased hospital admissions



Increased medical visits



Premature death



HOW CAN I PROTECT MYSELF FROM AIR POLLUTION?

Know the best times to be active outdoors:

- Check the **Air Quality Health Index** in your community (airhealth.ca)
- If you have a heart or lung condition, talk to your health care professional about additional ways to protect your health when air pollution levels are higher

Ways to reduce exposure:

- Avoid or reduce strenuous outdoor activities when air pollution levels are higher
- Avoid or reduce exercising near heavy traffic, especially during rush hour

WHAT ACTION IS THE GOVERNMENT OF CANADA TAKING ON NITROGEN DIOXIDE?

- Federal regulations have reduced outdoor NO₂ emissions in Canada from key sources.
- Canada has agreed to international treaties to reduce NO₂ emissions from outdoor sources.
- Canada has established the **Canadian Ambient Air Quality Standards (CAAQS)**. These are health- and environment-based numerical values of outdoor air concentrations of pollutants intended to drive continuous air quality improvement in Canada. The CAAQS, a key element of the Air Quality Management System, were developed through a process steered by the Canadian Council of Ministers of the Environment (CCME).

Pollutant	Averaging Time	CAAQS Numerical Values		Units	Metric
		Effective in 2020	Effective in 2025		
NO ₂	1 hour	60	42	Parts per billion (ppb)	The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentrations The average over a single calendar year of all the 1-hour average concentrations
	Annual (1 year)	17.0	12.0		

LEVELS OF NITROGEN DIOXIDE IN OUTDOOR AIR



Levels of NO₂ in outdoor air are higher in cities, especially near areas of heavy traffic, and are lower in smaller communities and in rural areas. Levels of NO₂ are also higher near some industries.

More information can be found on the **STATE OF THE AIR** website

<http://airquality-qualitedelair.ccmec.ca/en>

For more information on air pollution, please visit www.canada.ca/en/health-canada/services/air-quality.html or contact us at: HC.air.SC@canada.ca